

Lesson Plan	Maths	Whole Class		
Class: 1/2D - Year 1	Topic: Patterns & Algebra	Week: 3	Date: 12 May 2009	
Anticipated Outcomes: PAS1.1 Creates, represents and continues a variety of number patterns, supplies missing elements in a pattern and builds number relationships				
What do I want the students to do?				
Activity/purpose/class structure	Indicators	Assessment	Resources	IOT elements
<p>1. Assessing Questions - where are they up to?</p> <ul style="list-style-type: none">What are the odd numbers between 0 to 10? (If they don't know odd and even, draw two number lines and circle the odd/even lines (then show the pattern on a hundreds chart). Or ask children to form a pattern of sitting and standing (sitters are odd, standers even)What are some patterns you can show me on a hundreds chart? (eg. generalisations 'when I count by fives the last number goes five, zero, five, zero, ...'; 'When I add zero it does not change the number". Skip count and students point to their chart (or laminate them and students circle the patterns and rub them off as you go)What are some even numbers between 1 to 100? Can you say the numbers in <i>increasing order</i>? <i>Decreasing</i>? I'm thinking of an even number between 55 and 60Is $3 + 4$ the same as $4 + 3$? I could write $3 + 4 = 4 + 3$What is the missing element between 3,7, ,11, , 19, 23? (use a hundreds chart)Model with counters (or dots on board) $0 + 4 = 4$ $1 + 3 = 4$ $2 + 2 = 4$ $3 + 1 = 4$ $4 + 0 = 4$How many different ways can you write addition facts to 10? eg (draw 10 dots on the board and move a marker between them to get new ones eg. $1 + 9 = 9 + 1$)Jump strategy by 2s, 5s, 10s on a number line (then leave balnks)	<p>Number patterns</p> <ul style="list-style-type: none">identifying and describing patterns when countingforwards or backwards by ones, twos, fives, or tenscontinuing, creating and describing number patterns that increase or decreaserepresenting number patterns on a number line or hundreds chartdetermining a missing element in a number pattern eg 3, 7, 11, ?, 19, 23, 27modelling and describing odd and even numbers using counters paired in two rows <p>Number Relationships</p> <ul style="list-style-type: none">using the equals sign to record equivalent numberrelationships and to mean 'is the same as' rather than as an indication to perform an operation eg $5 + 2 = 4 + 3$building addition facts to at least 20 by recognising patterns or applying the commutative propertyeg $4 + 5 = 5 + 4$relating addition and subtraction facts for numbers to at least 20 eg $5 + 3 = 8$; so $8 - 3 = 5$ and $8 - 5 = 3$modelling and recording patterns for individual numbers by making all possible whole number combinations eg $0 + 4 = 4$ $1 + 3 = 4$ $2 + 2 = 4$ $3 + 1 = 4$ $4 + 0 = 4$finding and making generalisations about number relationships eg adding zero does not change the number, as in $6 + 0 = 6$		<p>Hundreds chart (one for each student) Lami-nated?</p> <p>Ten frames</p> <p>Counters</p> <p>Coloured chalks</p>	
<p>Friends of ten</p> <p>Construct a set of numeral cards in the range of one to ten - can be worn around the students' necks. Put another set of numbers up to ten on the floor. Call out numbers and make students grab a number, which when added to their number = the number called. Write up the variations on the board. Concentrate on 10 especially as prep for jump strategy.</p>				
<p>Evaluation of lesson sequence</p> <p>Were tasks appropriate for different abilities/students needs in class?</p> <p>Where to now for each group?</p>				

Activity/purpose/class structure	Indicators	Assessment	Resources	IOT elements
<p>Find the missing numbers</p> <p>Find the missing numbers</p> <p>Key idea</p> <p>Create, represent and continue a variety of number patterns and supply missing elements</p> <p>Materials</p> <p>Number sequences on cards or on the board</p> <p>Students work out the missing numbers in sequences such as the following.</p> <p>2, 5, 8, 11, ?, 17, 20 3, 6, 12, ?, 48, 96</p> <p>20, 19, 17, 14, ?, 5 $\frac{1}{2}$, $1\frac{1}{2}$, $2\frac{1}{2}$, $3\frac{1}{2}$, ?, $5\frac{1}{2}$</p> <p>?, 10, 20, 30, 40, 50 $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, ?, $3\frac{1}{2}$, 4, ?, 5</p> <p>100, 92, 84, ?, 68, 60, 52 2, 5, 10, 17, ?, 37</p>	<p>Talking about Patterns and Algebra Is it true?</p> <p>Key ideas</p> <p>Use the equals sign to record equivalent number relationships Build number relationships by relating addition and subtraction facts to at least 20</p> <p>Materials</p> <p>None</p> <p>Record statements such as the following, some true and some not true, and ask students if they are true, and to justify their answers. For example:</p> <p>$14 + 2 = 2 + 14$</p> <p>$18 + 3 = 2 + 18$</p> <p>$56 + 79 = 79 + 56$</p> <p>Do students realise that they do not have to do the addition in any of these examples, but they simply have to compare the two expressions? Do they balk at the large numbers in the third example, not realising that no calculations need to be done?</p>			
<p>Hundred chart activities</p> <p>Students need to understand how a hundred chart is constructed. Display the number line used in the previous activity. Take the 11 to 20 card and place it under the 1 to 10 card. Continue doing this to form a hundred chart. This activity shows the relationship between a number line and a hundred chart.</p> <p>Provide photocopies of a hundred chart and ask students to mark the patterns they can find. They record the patterns as number sequences, and label the sequences.</p> <p>Variation: Use 10 cm by 10 cm white card to write the numerals from 1 to 100. Students sit in a semi-circle. Use MAB flats to construct a square metre as a base board. Randomly hand out numeral cards, such as the even numbers. Ask students to describe how they might work out where their number goes. Repeat with other multiples and look for patterns.</p> <p>Extension: Provide blank hundred charts for students to complete. Students write about and share their patterns with other class members.</p>	<p>Commutativity</p> <p>Turn around number facts</p> <p>Use the equals sign to record equivalent number relationships Build number relationships by relating addition and subtraction facts to at least 20</p> <p>Students build addition and subtraction facts to at least 20 by answering If ... then ... questions, such as: What is $17 + 2$? ... If $17 + 2$ is 19, then what is $2 + 17$? How do you know?</p> <p>Matching facts such as $6 + 5$ and $5 + 6$ are recorded in pairs on the number posters from the previous activity.</p> <p>Set students the task of drawing a picture that shows that (say) $3 + 4$ is the same as $4 + 3$. Record on the board $3 + 4 = 4 + 3$. David drew this picture and explained that the same picture shows $4 + 3$ buttons and it also shows $3 + 4$ buttons, depending on which person's buttons you count first.</p> <p>Ask: If four plus three equals seven, what is seven minus three? What is seven minus four? How does this picture show seven minus three and seven minus four? Students explain their reasoning.</p>	<p>Students record in order all the pairs of whole numbers that equal a specific number. Below is an example, as one student did it. She drew lines to connect matching facts, thought the lines looked like a rainbow and called it a 'rainbow pattern'.</p> <p>Rainbow Patterns</p> <p>$0 + 7 = 7$</p> <p>$1 + 6 = 7$</p> <p>$2 + 5 = 7$</p> <p>$3 + 4 = 7$</p> <p>$4 + 3 = 7$</p> <p>$5 + 2 = 7$</p> <p>$6 + 1 = 7$</p> <p>$7 + 0 = 7$</p>		
<p>Evaluation of lesson sequence</p> <p>Were tasks appropriate for different abilities/students needs in class?</p> <p>Where to now for each group?</p>				

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

	
	
	
	
	